



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,567	09/27/2006	Masaru Hosokawa	8007-1118	4713
⁴⁶⁵ YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			<div>EXAMINER</div> <div>ABU ALI, SHUANGYI</div> <div>ART UNIT</div> <div>PAPER NUMBER</div> <div>1793</div>	
			<div>MAIL DATE</div> <div>09/16/2009</div>	<div>DELIVERY MODE</div> <div>PAPER</div>

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/594,567

Applicant(s)

HOSOKAWA ET AL.

Examiner

SHUANGYI ABU ALI

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CIS)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/06/2009 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-9 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no disclosure that the impurity particle with a size more than 0.5 micron is 100 or less. The application just discloses that the impurity content is less than 10 ppm ([0043]). There is no description in the examples that the particle with a size is impurity particles.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5, 7-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. patent No. 6,511,718 to Paz de Araujo et al.

Regarding claims 1-4, 9 and 11, Paz de Araujo et al disclose a composition comprising a mist droplets (i.e. precursor) for metal oxides with a median particle size of less than 0.5 micron (col. 13, line 60). The mist drop itself having a diameter of less than 0.5 micron, therefore the impurity contained in the mist drop is less than 0.5 micron too.

The references differ from Applicant's recitations of claims by not disclosing identical ranges (less than 0.5 micron). However, the reference discloses "overlapping" ranges (a median particle size of less than 0.5 micron) , and overlapping ranges have

been held to establish prima facie obviousness (MPEP 2144.05). This is apparent because if the median size is less than 0.5 microns (any value below 0.5 micron), the amount of particles larger than 0.5 microns can be minimal or even absent, thus reading on the claimed limitation absent evidence to the contrary.

With respect to "particle measurement by a light scattering type submerged particle detector in a liquid phase" the Examiner asserts that Paz de Araujo et al. meet this limitation because reference Paz de Araujo et al. discloses an overlapping range. Furthermore, the claims are directed toward a product and not a process for determining the particle size. The method to measure the particle size has no weight in a product claim since this is a process limitation.

With respect of claim 9, Paz de Araujo et al. disclose a precursor composition in liquid phase, thus meet the limitation of the instant claim. Claim 9 is drawn to a composition; the limitation of the composition movement does not change the structure of the composition because this is also a process limitation which does not add patentability to a product claim.

Regarding claims 5 and 7, Paz de Araujo et al disclose the metal alkylxide is tetraisopropoxy titanium (table1).

Regarding claim 8, Paz de Araujo et al disclose the composition can be hafnium compound (col. 18, line 46).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. patent No. 6,511,718 as applied to claim 1 above and further in view of U.S. patent No. 6,512,297 to Matsuno et al.

Regarding claim 6, Paz de Araujo et al disclose a metal oxide precursor composition for chemical vapor deposition. But they are silent that cyclopentadienyl compound is used in the composition. However, it would have been obvious to one of ordinary skill in the art at the time of invention by applicant to use cyclopentadienyl precursor in Paz de Araujo et al. teaching, motivated by the fact that Matsuno et al., disclose that both metal oxide and cyclopentadienyl precursors can be used in the CVD process (col. 15. lines 45-65). Interchangeability of one known CVD precursor for another that are both known for the same purpose is clearly within the scope of the skilled artisan.

Claims 1 - 4, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP2002-155008

Regarding claims 1-4 and 11, JP 2002-155008 discloses a precursor composition for CVD comprising less than 0.1 ppm impurity (abstract). Although the art is silent about the impurity particle size, when the impurity amount low enough, the number of the particle with a size of more than 0.5 micron, 0.3 micron, 0.2 micron, would meet the limitation of the instant application.

The reference differs from Applicant's recitations of claims by not disclosing identical ranges (impurity particle number less than 100 with size above 0.5 micron). However, the reference discloses "overlapping" ranges (the impurity particle less than

0.1 ppm), and overlapping ranges have been held to establish prima facie obviousness (MPEP 2144.05).

With respect to “particle measurement by a light scattering type submerged particle detector in a liquid phase”, JP2002-155008 discloses an overlapping range. Furthermore, the claims are directed toward a product and not a process for determining the particle size. The method to measure the particle size has no weight in a product claim since this is a process limitation.

Regarding claim 9, JP 2002-155008 discloses solvent is used for the precursor (specification)

Response to Arguments

Applicant's arguments filed 06/11/2009 have been fully considered but they are not persuasive. The rejection based on Fritzmeier is withdrawn since the impurity particle size is not disclosed.

Applicant argues that Paz de Araujo et al fail to disclose that the impurity has a size of less than 0.5 micron. The examiner respectfully submits that Paz de Araujo et al disclose a composition comprising mist droplets (i.e. precursor) for metal oxides with a median particle size of less than 0.5 micron (col. 13, line 60). The mist drop itself having a diameter of less than 0.5micron, therefore the impurity contained in the mist drop is less than 0.5 micron too.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHUANGYI ABU ALI whose telephone number is (571)272-6453. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.A. LORENZO/
Supervisory Patent Examiner, Art Unit 1793

/Shuangyi Abu-Ali/
Examiner, Art Unit 1793